

PREVALENCE OF HERBAL THERAPY USE IN ACTIVE DUTY AIR FORCE  
WOMEN

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## ABSTRACT

The herbal market in the United States is booming. With estimated 1999 sales of \$5 billion, some 60 million Americans are taking herbs regularly. Orem's Self-care Theory states self-care is a form of human activity referred to as deliberate action. The action can be goal-seeking or result-seeking activity. The decision to take herbs can be viewed as goal-seeking activity, such as health promotion, or a result-seeking activity, such as symptom relief. Few studies have documented the use of herbs by military women. The purpose of this study was to determine the prevalence of herbal use among active duty Air Force women. The study describes the perceived benefits and adverse effects of the herbs, and whether respondents told their healthcare providers of herbal use. The results provide information about the health practices of these women and suggest areas where practitioners may better meet the healthcare needs of this population. The results indicate that women in the military are using herbal therapies at a higher rate than the civilian population and only thirty-three percent of respondents told their medical provider of herbal use. The questionnaire was developed after a thorough review of the literature. The questionnaire was mailed to a random sample of 500 active duty Air Force women throughout the United States. The random list was obtained from the Department of Defense Manpower Data Center. Survey forms were not coded until received by researcher in order to protect the anonymity of the respondent.

Key words: **herbs** **active duty Air Force women** **Orem's Self-care Theory**

THE PREVALENCE OF HERBAL THERAPY USE IN ACTIVE DUTY  
AIR FORCE WOMEN

by

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## PREFACE

This research was conducted to provide information about the use of herbal therapy among active duty Air Force women. It was designed to provide information for a population in which there is no published research and to begin a body of knowledge.

## DEDICATION

To my husband, I dedicate the successful completion of this thesis. Without his love and support this would not have been possible. He was my shoulder to lean on when things seemed impossible and my strength throughout it all.

To my daughter Ashley, I dedicate my love. You have given me a reason to strive for excellence and to accept nothing short of my very best. I am so proud to be your mother.

To my fellow classmates and faculty, I dedicate this research. Their encouragement and support have been monumental. I am proud to be a member of the Class of 2001 and I will never forget you all.



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## CHAPTER I: INTRODUCTION

### The Problem

Ever since the passage of the Dietary Supplement Health and Education Act (DSHEA) in 1994, the U.S. herbal market has boomed. Estimated 1999 sales of \$5 billion include products that are found in almost every conceivable retail venue including pharmacies, discount retailers, supermarkets, convenience stores, and the World Wide Web (Learn & Higgins, 1999). There is a projected annual growth of 30%. Some 60 million Americans are now taking herbal medications regularly (Greenwald, 1998). Eisenburg and colleagues (1993) published results of a 1990 hallmark national survey that determined the prevalence, costs, and patterns of use of unconventional therapies, such as acupuncture, chiropractic, and herbal therapy. The results showed that one in three respondents reported using at least one unconventional therapy in the previous year and a third of these saw providers for unconventional therapy. In this 1990 survey, 3% of respondents had used herbal therapy over the previous year. Published results of a follow-up study to document the trends in alternative medicine from 1990 to 1997, concluded that alternative medicine use and expenditures increased substantially during this period and the increase in the use of herbal medicine increased from 3% in 1990 to 12.1% in 1997 (Eisenburg et al., 1998). Alternative therapy use was also more common among women than men. There have been few published studies on the use of herbal therapies in women or the military population.

America's rediscovery of the healing powers of plants marks a return to an ancient form of medicine that was primary medicine for thousands of years. The earliest evidence of humans' use of plants for healing dates back to the Neanderthal period. Herbal

medicine practice flourished until the 17<sup>th</sup> century when more scientific pharmacological remedies were favored (Trevelyan, 1993).

Hundreds of herbal products are currently available to the consumer, but most of these have not been proven safe or effective (Youngkin & Israel, 1996). Due to the increased use in the United States, the National Institutes of Health was instructed by Congress in 1992 to establish an Office of Alternative Medicine to sponsor and conduct studies related to alternative therapies, including herbs. In the United States, herbs are classified as nutritional supplements under the DSHEA. The primary purpose of the DSHEA is to make a greater amount of scientific information about the potential health benefits of dietary supplements available to Americans. According to this act, herbs, vitamins, minerals, amino acids, and botanicals may be sold legally as long as there is no therapeutic claim made on the label or accompanying literature (Glisson, Crawford, & Street, 1999). The manufacturer may state how the product can alter physiologic functions or structures within the body. The product must also state that the product has not been evaluated by the FDA and that it is not intended to treat, diagnose, prevent, or cure a disease.

### Testing

Herbal products are not tested with the scientific rigor required of conventional drugs, and they are not subject to the approval process of the FDA (Cupp, 1999). Also, unlike conventional drugs, herbal products are not regulated for purity and potency. The potency of the herbal product may increase the possibility of adverse effects. Thus, impurities or batch-to-batch variability can cause adverse effects and drug interactions.



Controlled studies of herbal medicines are not profitable, so there is little motivation for manufacturers to conduct randomized, placebo-controlled, double-blinded clinical trials to prove efficacy and safety. Manufacturers are not required to conduct trials and they cannot patent the product to recoup the estimated \$350 million it costs to prove that new drugs are effective and safe. Now, if questions arise, the burden lies with the FDA to prove the product is unsafe, rather than a company proving the product is safe (Winslow & Kroll, 1998). Because of the lack of quality control, safety, and efficacy, consumers may not be able to determine if an herb's active ingredients are actually in the product, if the ingredient is bioavailable, if the dosage is appropriate, or if the next bottle purchased will have the same ingredients. Guidance in safe and effective use is needed.

### Popularity

Herbal remedies are common throughout Asia and Europe and have always been very popular in Germany (Greenwald, 1998). In Europe, herbal medicines have a longer history of being accepted as alternate modes of therapy. Up to 40% of physicians in Germany and France use botanicals in their daily practice (Glisson et al., 1999, p. 46) In Germany, herbs are classified as drugs and are regulated by the German Commission E (Glisson et al., 1999). Commission E is a regulatory body that has developed a series of monographs on both beneficial and harmful products. The monographs provide accurate information on the therapeutic value of individual herbal products including adverse effects, dosing, and pharmacology. Therefore, many ongoing clinical studies regarding the safety and effectiveness of herbs have occurred there as well. Commission E maintains an active research team. Many clinicians and scientists in the field of herbal medicine have suggested that the United States adopt a Commission E program that

provides monographs. However, some manufacturers of herbal and nutritional products do not want the United States to establish such a regulatory policy because they would then have to prove the purity and quality of their preparations. This additional process might mean an overall decrease in profit.

Consumers are now turning to their health care providers for guidance concerning the quality, proper use, adverse effects, and precautions associated with these products (Glisson et al., 1999). Health care providers must be aware of the prevalence of herbal use among their patients and must develop an understanding of the available literature concerning the herbal products to provide their patients with the information needed on potential risks and benefits of these products.

#### Problem Statement

The use of herbal therapy in the civilian population is being documented through research. At this time, little research has explored the prevalence of herbal therapy use among women in the military.

#### Purpose of the Study

Few studies are available that document the use of herbal therapy among women in the military. The purpose of this study was to determine the prevalence of herbal medicines among active duty Air Force women and to assess the symptoms for which herbs are used. The study also described the perceived benefits of the herbs, adverse effects reported, who recommended the use of herbs, and whether the respondents' health care providers were aware of their use. The results provide useful information about the health beliefs and practices of many patients and suggest areas where practitioners and the present health care system may better meet their patients' needs. If health care

professionals are to effectively support individuals in making informed, safe, and appropriate choices, it is critical that they develop a greater understanding and awareness of the nature, potential efficacy, and reasons for patients' use of herbal self-care approaches.

### Research Questions

1. What herbs are active duty Air Force women using and was a provider seen for the same problem the herbs were used?
2. How frequently are the herbs being used?
3. What are the major reasons for which active duty Air Force women take herbs?
4. Is there any relationship between demographic characteristics of active duty Air Force women and their use of herbs?
5. Do active duty Air Force women find the herbs used beneficial?
6. Did the participant tell her medical provider of her herbal use?
7. Who recommended the use of the herbal therapy?
8. Were there any adverse effects reported with use of herbs?
9. What other prescriptive medications are being taken concurrently?
10. What is the herbal user's personal perception of her overall health?

### Theoretical Framework

The central idea of Orem's Self-care Theory is that self-care is a learned behavior. It serves to regulate human structural integrity, functioning, and development. This theory identifies the relationship between the deliberate self-care actions of an individual and his/her functioning and development (Orem, 1980). In addition, this theory focuses on several factors that influence activities that promote health and well being. These

factors include health needs, attitudes about health motivators, and ability to perform selected activities. An alteration in any of these factors results in one's health being compromised; what Orem names, a "self-care deficit." Self-care can only be effective when the client has a basic understanding of the factors that influence health and the causes of disease. A lack of understanding may occur secondary to limited opportunities for health education, and may severely impair the client's ability with respect to self-care. Orem describes self-care as action. Self-care and care of dependents are forms of human activity referred to as deliberate action (Orem, 1980). This means that it is goal-or result-seeking activity. It also implies that the meaning of the result sought is identified before the action is taken. This can be performed at various levels of understanding. For example, adults tend to care for themselves and their dependents to sustain, protect, and promote human functioning. If adults approach care with a background of scientific knowledge, they may see metabolic balance through the controlled intake of nutrients. Orem also states that ways of meeting self-care needs (self-care processes, technologies, and practices) are cultural elements and vary with individuals and larger social groups.

The decision to take herbs was explored with this self-care model. Adults may opt to care for themselves by taking herbal supplements. The decision to take herbal medications can be viewed as a goal-seeking activity such as health promotion or a result-seeking activity such as the relief of certain symptoms. Herbal use in different populations may be associated with socioeconomic and cultural influences. The military may be viewed as a unique culture with health practices that may differ from those in other populations.

## Definition of Terms

The following were the theoretical and operational definitions used in this study:

### Active Duty Air Force woman

A woman serving on active duty status in the Air Force.

### Adverse Effects

Any response to a drug which is unfavorable and unintended.

### Alternative Therapy

Medical interventions not taught widely at U.S. medical schools or generally available at U.S. hospitals. Examples include herbal therapy, acupuncture, chiropractic, and massage therapy. (Eisenburg et al., 1993).

### Complementary Medicine

The use of therapeutic systems and modalities together with conventional treatments to enhance the effectiveness of therapy (Jonas & Levin, 1999).

### Frequency

The number of times any event recurs in a given period (Neufeldt & Sparks, 1995).

### Demographics

Characteristics of a population such as age, sex, and income, for analysis (Neufeldt & Sparks, 1995).

### Herbalism

The use of crude plant-based products to treat, prevent, or cure a disease (Glisson et al., 1999).

### Health Care Provider

A physician, physician assistant, or nurse practitioner.

### Assumptions of the Study

This study was based on the following assumptions: (a) all responses of the study subjects were valid, and (b) all respondents understood and followed directions in completing the survey form.

### Limitations of the Study

It may not be possible to generalize the results of this study of military women to the use of herbal therapy in the general population. This study also has limited generalizability due to the relatively small sample.

### Summary of This Chapter

The importance of this study is that it will provide insight into the health practices of active duty Air Force women. The nurse practitioner, with this expanded knowledge of health behavior, can explore the women's reasons for seeking herbal therapy so that common health goals can be established, appropriate education initiated, and a therapy prescribed that can facilitate meeting these goals.

The implications of health promotion behavior for nurse practitioners are enormous. Individuals are becoming increasingly involved in health promotion activities. This may be the result of the public's awareness of the benefits of healthy behavior. Nurse practitioners, as major advocates in health promotion, have encouraged increased participation in these activities as well as active patient participation in the decision making process of health care. In order to continue to be effective in this role, nurse practitioners need a greater knowledge and understanding of the health care practices of the population. This study provides a basis for understanding the health promotion activities of women in the military in that it has determined whether this population is

using herbal therapies. Additionally, nurse practitioners need to be informed about non-traditional therapies their patients use, since some may be contraindicated when used with certain traditional medications and therapies.

## CHAPTER II: REVIEW OF LITERATURE

### Introduction

This chapter will present a review of the literature pertaining to the use of herbal therapy. The literature describes the use of herbal therapy by women, the recommended use of herbal therapy by healthcare providers, the positive and adverse effects of herbal therapy, the characteristics of people who use herbal therapy, and the incidence of drug interactions.

Many people in the United States use herbal therapies for health problems, but the extent of this use is still not clear. Few studies are available that document the use of herbs in this country, and there is little research in terms of women and the military population. The majority of the literature cites studies on alternative health care as a whole, with the use of herbal therapy by the general population included as a component of alternative or complementary health care. Recent studies of general practitioners in western Europe, Israel, and former Commonwealth nations have found that from 25% to more than 80% of general practitioners were using alternative or complementary methods to supplement mainstream medicine (Gordon, Sobel, & Tarazona, 1998).

There have been studies published that have reported the benefits of herbal usage but there have also been many documented adverse drug effects and interactions regarding the use of herbal medicine (Cupp, 1999). Eisenburg and colleagues (1998) report that nearly one in five individuals taking prescription medications were also taking herbs, consequently, approximately 15 million adults are at risk for potential adverse interactions involving prescription medications. Additionally, the use of less than 40% of alternative therapies was disclosed to health care providers.



### Characteristics of Users

Presently there is no clear or comprehensive theoretical model to account for the increasing use of herbal therapy. As noted previously, Eisenburg and colleagues (1993) published a landmark study to determine the prevalence, costs, and patterns of use of unconventional therapies, including herbal therapy, in the United States. The study consisted of a national telephone survey of 1539 adults, from randomly selected English-speaking households. The results indicated that the use of alternative therapies was more common among the 25-39 year-old age group and less common among blacks. The therapies were more common in those with college education, incomes greater than \$35,000 per year, and those residing in the West. There were no significant differences according to sex or insurance status and only small variations according to the size of the community. One in three respondents reported using at least one unconventional therapy in the previous year and a third of these saw providers for unconventional therapy. The most commonly reported medical conditions for which alternative therapy was used included back problems, insomnia, headache, anxiety, and depression. No reported conditions included herbal therapy as a primary therapy for treatment. Eighty-nine percent of respondents who saw a provider of unconventional therapy in 1990 did so without the recommendation of their medical provider, and 72% did not inform their primary provider of their use of the therapy. The generalizability of these findings is limited because the survey was confined to households with telephones and excluded non-English speakers and persons for whom the interview would be burdensome because of physical or mental impairment.

In 1997, Eisenburg and co-investigators (1998) conducted a parallel, nationally representative telephone survey using random-digit dialing to select households and random selection of one household resident. As in 1990, eligibility was limited to English speakers in whom cognitive or physical impairment did not prevent completion of the interview. The purpose of the study was to study again the prevalence, estimated costs, and disclosure of alternative therapies. A lower survey response required the researchers to offer a \$20 financial incentive for participation in the 1997 survey to maintain a response rate near the one achieved in 1990. No financial incentive was used in the 1990 survey.

The results of this follow-up study showed the use of alternative therapies was more common among Caucasian women than members of other racial groups. People aged 35-49, those with some college education, and annual incomes above \$50,000 were more likely to use some form of alternative therapy. Use was also significantly more common among those living in the Western U.S. than among those living in the rest of the country. With the exception of observed sex differences, the patterns were consistent with those identified in 1990. The use of herbal therapy increased from 2.5% in 1990 to 12.2% in the 1997 survey. Among the 44% of the adults who said they regularly took prescription medications, nearly 20% reported the concurrent use of at least one herbal product, a high-dose vitamin, or both. The most common physical complaints for which herbal therapy was used in 1997 were allergies, insomnia, lung problems, and digestive problems. Fewer than 40% of the alternative therapies used were disclosed to the participant's provider (Eisenburg et al., 1998).

Eliason, Kruger, Mark, and Rasmann (1997) studied the use of dietary supplements, demographics, and the use of the established health care systems in the metropolitan Milwaukee area. During a 15-day period in 1995, consecutive customers visiting two health food stores were interviewed by telephone regarding their use of dietary supplements (defined in this study as vitamins, minerals, herbal products, tissue extracts, proteins, and amino acids). Of the 194 customers contacted, 136 (70.1%) completed the survey. Topics addressed included the name and dose of supplement, perceived benefit, whether the participant had seen a medical doctor for the same condition, who recommended the supplement, and what current prescribed medications the respondents were taking. Also addressed were the personal perceptions of one's health, whether the respondent had a regular medical doctor, whether the medical doctor was aware of the supplement use, and basic sociodemographic information. The results showed that a total of 805 supplements were used (an average of 5.9/respondent). The most common supplements used were Garlic, Ginseng, Ginkgo Biloba, evening primrose oil, alfalfa, and Echinacea.

Of the 805 supplements used, the perceived benefits included good health, general wellness prevention, cardiovascular benefits, gastrointestinal benefits, musculoskeletal problem prevention, and energy/metabolism. The typical respondent purchasing the supplement was white (94%), female (75%), 40 to 49 years old (30.9%), and educated beyond high school (35.3%). Most of the supplements consumed appear to be safe, but there were adverse effects reported on 50 of the 805 supplements used. The respondents reported use of the conventional health care system, but did not typically consult their physician about dietary supplements. Most (84.3%) considered themselves healthy and

were not taking supplements to treat an existing problem but took supplements to prevent a health problem. They also chose to take the products based on information received from various written sources. The study was limited to two suburban health food stores that served a primarily white middle-class population (Eliason et al., 1997).

Previous reports about herbal remedies in the rural South have described the use and biologic activities of locally gathered plant species, but have not described the prevalence of the use of plant-derived remedies in the study population or the prevalence of use of specific remedies. From March to June 1993 the University of Mississippi collected information on demographic, socioeconomic and health variables, medicinal use and knowledge of 25 specific plants or plant-derived substances, and diseases or symptoms treated with these plants (Centers for Disease Control and Prevention, 1995). A 2% random cluster sample of households was selected from detailed transportation maps for two geographic areas in rural central Mississippi (1990 rural central Mississippi population: 33,992). Of the 223 households contacted, one or more adults in 210 (94%) households participated; 251 adults were included in the survey.

Of the 251 respondents, 178 (71%) reported having used plant-derived remedies during the previous year. The prevalence of reported use varied among age groups and was significantly higher among persons aged 45-64 years (81%) than among those aged 18-44 years (75%) and those over 65 years old (62%) ( $p < .05$ ). This data indicated that the use of plant-derived remedies was widely distributed among all age groups. The survey findings document the popularity of self-treatment with plant-derived therapies in this population (Centers for Disease Control and Prevention, 1995).

### Use of Herbal Therapy by Women

Women use conventional health care services more frequently than men; thus it is not surprising that women account for approximately two thirds of health care appointments for complementary and alternative therapies. Herbal therapy is used by women around the world for a variety of reproductive health problems, including menstrual problems and infertility, discomforts and dysfunctions of pregnancy, labor, and menopause (Beal, 1998). There have been studies reported in the literature concerning the use of herbal therapies by women, but few studies looked at the use of herbs by women in the military.

MacLennan, Taylor, and Wilson (1996) conducted a large study in Australia that involved interviews with over 3,000 adult men and women on their use of alternative therapies and visits to alternative health care providers during 1993. The researchers asked the participants specifically if they had used evening primrose oil, Ginseng, aromatherapy oils, non-prescribed vitamins or minerals, esten (an estrogen product), PMTese (a product for premenstrual tension), and herbal, homeopathic, and Chinese medicines. Findings indicated that 48.5% of the participants had used at least one nonphysician prescribed alternative medicine, and more than 20% had visited an alternative practitioner. Differences based on sex emerged in this study: perimenopausal women used alternative therapies at a higher rate, and women were significantly more likely to use non-medically prescribed medicines than men ( $p < .001$ ).

Albertazzi and co-researchers (1998) assessed the effect of daily dietary supplementation of soy protein on hot flushes in post-menopausal women in Italy. They conducted a double-blind, parallel, multi-center, randomized placebo-controlled study of

104 post-menopausal women. Fifty-one patients (age range 48-61 years) took 60 g of isolated soy protein daily and 53 patients (age range 45-62 years) took 60 g of placebo (casein) daily. To be eligible for the study, the patients had to have a minimum number of seven moderate to severe hot flushes (including night sweats) per 24 hours during at least the last two weeks of the four-week prestudy period. Moderate hot flushes were defined as a warm sensation associated with sweating, which left the patient able to continue her daily activity. Severe hot flushes were defined as a hot sensation associated with sweating so intense that the patient had to stop her activity. Patients were also required to have a baseline follicle stimulating hormone (FSH) concentration greater than 50 IU/L and a serum estradiol concentration less than 35 pg/mL. Hormone replacement therapy was not allowed during the study period. The study lasted 12 weeks.

The results of the study by Albertazzi and colleagues (1998) show that soy was significantly superior to placebo in reducing the mean number of hot flushes per 24 hours after 4, 8, and 12 weeks of treatment ( $p < .01$ ). Women taking soy had a 26% reduction in the mean number of hot flushes by the third week and a 33% reduction by the fourth week ( $p < .001$ ). By the end of week 12, patients taking soy had a 45% reduction in their daily hot flushes, versus a 30% reduction obtained with the placebo ( $p < .01$ ). The overall rates of adverse effects were similar for soy and casein-placebo. Twenty-five patients dropped out of the study: 11 in the soy group and 14 in the placebo group. Gastro-intestinal side effects were the most common cause of premature withdrawal from the study.

### Herbal Therapy Use in the General Population: Positive Effects

Few studies have assessed the positive benefits of herbal therapy in women. There is little motivation for manufacturers to conduct randomized, placebo-controlled, double-blinded clinical trials to prove efficacy. The studies are not profitable, the manufacturers cannot patent the product to recoup the costs, and they are not required to do so (Cupp, 1999). Despite these limitations, some scientific studies have been found in the literature, but none exclusively that studied women or the military population. The following studies looked at the effects of herbal therapy in the treatment of depression, benign prostatic hypertrophy, and irritable bowel syndrome in the general population.

#### Depression

St. John's Wort (*Hypericum perforatum*) is a widely used herbal medicine used for the treatment of depression. Extracts of St. John's Wort have been used in European folk medicine for centuries. Linde and colleagues (1996) performed a systematic review and meta-analysis of 23 randomized clinical trials to obtain a more accurate assessment of the clinical antidepressant effect of the herb. The 23 randomized trials, including a total of 1757 outpatients with mild or moderately severe depression, were studied. Fifteen studies were placebo controlled. Eight studies compared hypericum with another drug treatment. The trials used various methods to measure treatment effects. The most consistently used instruments were the Hamilton Depression Scale (used in 17 trials) and the Clinical Global Impressions Index (used in 12 trials). The following parameters had to be met for study inclusion: the study designs were randomized or quasi-randomized controlled trials; types of participants were people with depressive disorders; types of interventions included comparison of preparations with St. John's Wort (alone or in

combination with other plant extracts) with placebo or other antidepressants; and the use of clinical outcome measures (such as depression scales or symptoms).

Primary study characteristics and results were extracted by at least two independent reviewers. Questionnaires were then sent to authors, or sponsors, or both, of all studies for checks of the correctness of extracted data. The results showed that hypericum extracts were significantly superior to placebo (ratio=2.67; 95% confidence interval 1.78 to 4.01) and similarly effective as standard antidepressants. Side effects occurred in 19.8% of the patients on hypericum and 52.8% of the patients on standard antidepressants (Linde et al., 1996).

#### Benign Prostatic Hypertrophy

In a non-randomized, open-label investigation, Gerber, Bales, Chodak, Contreras, and Zagaja (1998) assessed the effects of saw palmetto on voiding symptoms and urodynamic parameters in men with lower urinary tract symptoms (LUTS). Fifty men with previously untreated LUTS and minimum International Prostate Symptom Scores (IPSS) of 10 or greater were treated with a commercially available form of saw palmetto for six months. Patients were excluded if they had previously undergone prostate surgery, had a history of prostate cancer, urethral stricture disease, or had been treated with finasteride or saw palmetto within six months. Four men discontinued the use of saw palmetto before completion of the study because of severe voiding symptoms that did not improve during the course of treatment. Among the 46 men who completed the study, a significant improvement in the IPSS was noted, when comparing the mean initial symptom score with the mean value at two, four, and six months ( $p < .001$ ). However, there was no significant change in peak urinary flow rate ( $p = .60$ ), serum PSA level



( $p = .80$ ), or in any of the measured urodynamic parameters. The results can be interpreted in several ways. The changes in symptom score may be largely due to placebo effect. The men in this study knew they were being treated with an “active” agent. The sample size was relatively small and the method of patient selection may have prevented the authors from detecting small but significant improvements in urinary flow rates or urodynamic measures.

### Irritable Bowel Syndrome

Bensoussan and associates (1998) evaluated the effectiveness of a standard Chinese herbal medicine (CHM) formulation in the treatment of irritable bowel syndrome (IBS). A total of 116 subjects in Sydney, Australia were recruited during an 18-month period: 35 were randomized into the placebo group, 43 into the standard group, and 38 into the individualized treatment group. Fifteen patients withdrew during the four-month course of the trial and two patients were withdrawn from the trial for commencing a variety of relevant medications during the treatment period. Patient groups were similar in age, weight, and sex. Compared with patients in the placebo group, patients in the active treatment groups (standard and individualized CHM) had significant improvements in patient reported bowel symptom scores ( $p = .03$ ) and by the gastroenterologists ( $p = .001$ ). Significant improvement was also noted as rated by patients ( $p = .007$ ) and by gastroenterologists ( $p = .002$ ). Patients reported that treatment significantly reduced the degree of interference with life caused by IBS symptoms ( $p = .03$ ). Chinese formulations individually tailored to the patient proved no more effective than standard CHM treatment. However, on follow-up, 14 weeks after completion of treatment, only the

individualized CHM treatment group maintained improvement. There were minimal adverse effects reported during the study.

These investigators suggested several plausible explanations for the results of their study. One may be that the standard CHM formulation was suitably designed to treat the complex presentations of IBS but was incapable of successfully dealing with underlying causes. The tailored formulations may have permitted the herbalists to individually address these underlying causes and deficiencies. Moreover, they state there may have been active ingredients in the CHM formulation with properties similar to antispasmodic or anxiolytic drugs. The standard formulation used in this study was not a sedative or anxiolytic preparation in the traditional CHM terms but is a formulation considered to regulate and strengthen bowel function (Bensoussan et al., 1998).

#### Recommended Use of Herbal Therapy by Healthcare Providers

McFarlin, Gibson, Harman, and O'Rear (1999) conducted a national survey of 500 members of the American College of Nurse Midwives (ACNM) to document the use of herbal preparations for cervical ripening, induction, and augmentation of labor. Forty-eight nurse-midwifery education program directors were also surveyed to determine whether they were formally or informally educating students in the use of herbal preparations. Of the 500 questionnaires mailed to ACNM members, 172 were returned; 90 from midwives who used herbal preparations to stimulate labor and 82 from midwives who did not use herbal preparations to stimulate labor. No significant differences were noted in relation to geographical region, midwifery education, or highest level of education between the midwives who did and those who did not use alternative methods to stimulate labor. Of the midwives who did use herbs to stimulate labor, 64% used blue

cohosh, 45% used black cohosh, 63% used red raspberry leaf, 93% used castor oil, and 60% used evening primrose oil. Seventy-five percent of the midwives who used herbal preparations to stimulate labor used them first or instead of pitocin. Sixty-nine percent of midwives learned about using herbs from other midwives, 4% from formal research publications, and none from their formal education programs. Sixty-four percent of the nurse-midwifery education programs included instruction in the use of herbal preparations to stimulate labor in their formal curricula and 92% included informal discussions on the use of herbal preparations. Evening primrose oil was the most common herbal preparation discussed in nurse-midwifery education programs and castor oil was the most commonly used herbal preparation used by nurse-midwives in clinical practice. One must question the generalizability of these results due to the rather low return rate (172/500).

During the spring of 1996, a random sample of adult primary care physicians, women's health physicians, nurse practitioners, and adult members of Kaiser Permanente Medical Care Program in northern California were surveyed by mail (Gordon et al., 1998). The purpose of the survey was to assess the use of alternative therapies and to estimate the extent of interest in having the therapies incorporated into their health maintenance organization (HMO) care. The most common alternative therapies used by the adult HMO members included chiropractic (23.4%), massage therapy (13.9%), and relaxation techniques (11.8%). Herbal therapy use was reported to be 7.5%. The physical complaints for which most herbal therapy was used included upper respiratory tract infections, general health maintenance, pain, allergies, mental health or depression, stress,

sleep, fatigue problems, and gastrointestinal problems. Women also reported herbal therapy for premenstrual syndrome (PMS) and menopause.

Among primary care physicians surveyed, 8.8% reported using or recommending herbal medicines to their adult patients. Twenty-nine percent of the women's health clinicians reported recommending herbal therapy to their patients, primarily for pain management. Asked if they would like to see HMO health care professionals have greater opportunity to use alternative therapies to treat their patients' health problems, 65.6% of the primary care physicians and 74.3% of women's health clinicians expressed interest. Most clinicians downplayed factors such as patient demand and the concern that the HMO might need to offer alternative therapies to stay competitive. Despite this, there was a significant association between clinicians' reports of the frequency with which patients were mentioning alternative therapy and the level of clinician interest in using these therapies ( $p < .001$ ). However, based on the extent of interest among primary care clinicians and members, 30.7% of members reported that they would like to have herbal therapy covered by the health plan (Gordon et al., 1998).

#### Herbal Therapy: Adverse Effects and Drug Interactions

The World Health Organization Collaborating Center for International Drug Monitoring has received over 5000 reports of suspected adverse reactions that have mentioned herbal medicines from different national centers (Edwards, 1995). This probably represents considerable underreporting, given the total size of the database of over 1.4 million reports related to conventional drugs. Efforts are being made by prescribers of herbal medicine within Europe to gain information on adverse reactions.

Ginkgo Biloba and St. John's Wort are among the most commonly used herbs in the United States. It is estimated that 10.8 million Americans are taking Ginkgo Biloba and 7.3 million are taking St. John's Wort (Greenwald, 1998). Reports of adverse reactions have been reported with these herbs. One report, described a 70-year-old man who presented with bleeding from the iris into the anterior chamber of the eye one week after beginning a self-prescribed regimen consisting of Ginkgo Biloba (Rosenblatt & Mindel, 1997). Interaction of the Ginkgo product and aspirin was considered the cause of the ocular hemorrhage.

Another report of an adverse interaction with Ginkgo involved warfarin. A 78 year old woman who had been taking warfarin for five years after a coronary bypass surgery suffered a left parietal hemorrhage after using a Ginkgo product for 2 months (Matthews, 1998). No change was noted in her prothrombin time. The intracerebral bleed was attributed to the antiplatelet effects of Ginkgo. In another case, a 33 year old woman was diagnosed with bilateral subdural hematomas after taking Ginkgo Biloba for two years (Rowin & Lewis, 1996). Her other medications included acetaminophen and an ergotamine-caffeine preparation, which she used briefly. While she was taking Ginkgo, her bleeding times were 15 and 9.5 minutes (normal 3 to 9 minutes). Within 35 days after she stopped taking the Ginkgo product, her bleeding times were normal.

St. John's Wort is widely promoted as a "natural" anti-depressant. Adverse effects have also been reported with use of this product. One report described a 50 year old woman who had taken St. John's Wort while also taking Paxil (Gordon, 1998). She became incoherent and lethargic and complained of nausea, weakness, and fatigue. The effects were associated with the combined use of the two products. Another case reported

a 35-year-old woman who developed stinging pain on sun-exposed areas after four weeks of treatment with St. John's Wort (Bove, 1998). After she stopped taking the St. John's Wort, her symptoms gradually resolved over two months.

Dietary supplements that contain Ephedra alkaloids are widely used and promoted in the United States for increasing energy and weight loss. Haller and Benowitz (2000) reviewed 140 reports of adverse events related to the use of Ephedra. Thirty-one percent of cases were considered to be definitely or probably related to the use of supplements containing Ephedra alkaloids and 31 percent were deemed to be possibly related. Among the adverse events that were deemed definitely, probably or possibly related to Ephedra, 47 percent involved cardiovascular symptoms and 18 percent involved the central nervous system. Hypertension was the single most frequent adverse event (17 reports), followed by palpitations, tachycardia, or both (13), stroke (10) and seizures (7). Ten events resulted in death and 13 events produced permanent disability, representing 26 percent of the definite, probable, and possible cases.

Ephedra-containing products have been associated with the development of kidney stones. Powell, Hruska, Hsu, and Turk (1998) reported a kidney stone removed from a 27-year-old body builder, that was comprised of ephedrine, pseudoephedrine, and metabolites. The body builder had been taking up to 12 Pro Lift tablets daily. Each tablet was found to contain approximately 10 mg of ephedrine. In other cases, over 100 ephedrine-containing kidney stones were identified from January 1996 to June 1997, but there were no reports of how many of these stones were associated with the use of ephedrine-containing products.

## Health Perception and Herbal Use

Research, both in the United States and abroad, suggests that significant numbers of people are using various forms of herbal therapy but the reasons for such use is unknown.

Astin (1998) investigated the possible predictors of alternative health care use. The goal was to develop some tentative explanatory model that might account for this phenomenon. Three primary hypotheses were proposed by Astin to explain the phenomenon: (a) patients who use alternative health care are dissatisfied with conventional care; (b) they see alternative therapies as less authoritarian and prefer to maintain greater personal control over their healthcare; and (c) that they find such therapies more compatible with their beliefs about health and illness. A total of 1035 randomly selected individuals throughout the United States completed a written questionnaire examining the use of alternative health care within the previous year, health status, and values and attitudes toward conventional medicine. In addition to testing the validity of the hypotheses, the study also sought to determine how the decision to seek alternative therapies was affected by one's health status and demographic factors.

The survey was conducted through National Family Opinion Inc., which maintains a panel of persons who have agreed to be participants in mail surveys. A random sample was drawn from this panel. Forty percent of the respondents reported using some form of alternative health care during the past year. The top four treatment categories were (a) chiropractic, (b) lifestyle and diet, (c) exercise/movement, and (d) relaxation. Herbs were used as the third most popular alternative therapy for anxiety, arthritis, depression and digestive problems, and were the fifth most popular alternative therapy for

sprains/strains. Predictors for use of alternative therapies included higher educational level, poorer general health status, and specific health problems. No significant differences were found with respect to sex, income, age, or geographic location. The respondents, who used alternative health care, were more likely to have a holistic orientation toward health (believe in the importance of body, mind, and spirit in health). These respondents also tended to have had some type of transformational experience that had changed their view of the world in some significant way. Users of alternative therapy in conjunction with conventional care were no more dissatisfied with or distrustful of conventional care as compared to nonusers. However, those categorized as primarily reliant on alternative care were more likely to be dissatisfied with and distrustful of standard care and desired to maintain exclusive control over their health care decisions (Astin, 1998).

Furnham and Smith (1988) compared two groups of patients in England, one visiting a general practitioner and the other a homeopath. They were not significantly different in terms of age, sex, education, marital status, religion, and income. Questionnaires were distributed to every tenth patient at each practice over a period of two weeks. In all, 87 subjects took part in this study, of these 43 were visiting a traditional general practitioner and 44 a homeopath. The main hypothesis was that homeopathic patients would have a completely different belief system concerning the origin of illness and maintenance of health from those people consulting a traditional general practitioner. The study concentrated on the opinions, beliefs, and behavior intentions of people rather than on their actual behavior.



The study revealed that homeopathic patients had many more negative opinions about the effectiveness of traditional doctors in treating illnesses and treating people who are sick ( $p < .01$ ). The homeopathic group showed an unfavorable attitude toward the quality of traditional medical care and a dissatisfaction of medical care and services in general ( $p < .001$ ). No difference was found in the groups regarding their perceived susceptibility to disease (Furnham & Smith, 1988). This was a small-scale study based on a non-probability sample and hence generalizations from these findings are limited.

Furnham and Forey (1994) examined the attitudes, behaviors, and health-related beliefs of two groups in London: 80 patients visiting a general practitioner, and 80 visiting an alternative practitioner. This study found little difference in demographic characteristics of the two groups. Furnham and Forey found that the alternative therapy group had a greater tendency to believe in the effectiveness and competence of alternate practitioners than did the group that consulted the general practitioner ( $p < .001$ ). The study failed to confirm that patients' dissatisfaction with their general practitioner led them to seek care by an alternative practitioner. The alternative group had a higher degree of control ( $p < .001$ ) and had a greater knowledge of biological and physiological functioning of the body ( $p < .001$ ).

### Summary

There has been minimum research on the use of herbal therapy by Americans, and few published studies have looked at the use of herbs among military women. Eisenburg and co-investigators (1998) did report a significant rise in the use of herbal therapy in the United States between 1990 and 1997. There have been several European studies describing the characteristics of users of alternative medicine among Europeans;

however, due to the differences in culture and the differences in health systems, it is difficult to generalize their study results to the American population.

There are only a few randomized, placebo-controlled, double-blinded studies in the literature that study the efficacy and safety of herbs. More research is needed in this area in order to make evidence-based decisions for patient care, education, and consultation.

There are several reports of adverse effects and drug interactions with the use of herbs. Underreporting is a major problem in establishing the incidence of drug interactions with herbal therapy. Therefore, the true prevalence of herbal remedy use is unknown. It is important to know the prevalence of herbal use among the military population so health care providers can support and educate their patients regarding the use and safety of herbal therapy products.

Individuals are becoming increasingly involved in self-care activities. This study has increased nursing's knowledge of the health behaviors of active duty Air Force women and will identify what specifically influences the patient's choice in selecting self-care activities. It may become necessary for health care providers to become more knowledgeable regarding herbal therapy in order to provide safe education, consultation, and follow-up to the patient population.

### CHAPTER III: METHODOLOGY

This chapter outlines the methods used to carry out this study. Sections in this chapter include the research design, population and study sample, development of the survey form, instrument validity and reliability, measures for the protection of human subjects, and data analysis procedures. The findings of the study will be presented in Chapter IV.

#### Research Design

The design of this study was a descriptive survey whose purpose was to determine the extent of herbal therapy use among active duty Air Force women. The research was designed to describe the prevalence of herbal use, characteristics of the users, diagnoses for which herbs are used, beneficial and adverse effects experienced by the user, and the users' overall perception of their health. Few studies have documented the use of herbal therapies in this population. According to Orem (1980), adults tend to care for themselves to sustain, protect, and promote human functioning. This study will describe the way this particular population self-treats by using herbal therapies.

#### Population and Study Sample

A random sample of 500 active duty Air Force women was selected. A request was placed to obtain a mailing list from the Department of Defense Manpower Data Center in Fort Ord, California using the Defense Eligibility Enrollment Reporting System (DEERS). The request asked for 500 names of eligible members throughout the United States. A duty address was obtained for each eligible member.

### Instrumentation

The data collection instrument used in this study was developed after a thorough review of the literature (See Appendix A). The instrument included demographic questions and a table listing the most common herbal therapies used according to the literature. Respondents were asked to indicate which herbal therapies have been used in the last two years, the diagnosis for which a specific herb was used, whether a provider was seen for the same diagnosis, and whether the respondent told the provider of the herbal use. Respondents were also asked sources of recommendation for the use of the herbal therapy, any beneficial or adverse effects experienced (if any), any prescription medications being taken, and the overall view of their health.

### Instrument Validity and Reliability

Three experts in the area of herbal therapy assessed the survey instrument for content validity. The instrument assessors included the former Director of the Office of Alternative Medicine at the National Institutes of Health (NIH), a nurse practitioner with vast experience in the field of herbal medicine, and the Chairman of the Family Nurse Practitioner program at Uniformed Services University of Health Sciences (USUHS). Based upon their input, the instrument was not altered.

A dimension of reliability was obtained by the test-retest method. Ten active duty Air Force Women at USUHS were asked to complete the questionnaire and to repeat the questionnaire a week later. The students found the questions unambiguous and found the directions to be clear. The students submitted the same responses on both occasions, thus formal reliability testing was not done.

The questionnaire was submitted to the Survey Branch at AFMPC/DPSAS, Randolph Air Force Base, Texas and was approved and given a survey number (USAF SCN 00-32). The study proceeded based upon this approval.

#### Protection of Human Subjects

The proposal for this study was presented to the Institutional Review Board of the Uniformed Services University of the Health Sciences and approved as Project Number T061BG-01 (see Appendix B). Survey forms were not coded until returned to the researcher in order to protect the anonymity of the respondent. The respondents were asked not to write their names on the return envelope or the survey form. A letter with information regarding the survey accompanied the mailed survey (see Appendix C). The participation and completion of the questionnaire was voluntary.

#### Data Collection

The questionnaire was mailed to the 500 randomly selected sample members. A letter accompanied the questionnaire. The letter discussed the purpose of the study and gave instructions for questionnaire completion, and to return it in a self-addressed stamped return envelope. The questionnaire was estimated to take 15 minutes to complete.

#### Data Analysis

Descriptive statistics were prepared for all the items on the questionnaire. The results are presented in the form of tables and graphs in Chapter IV. Correlation coefficients were computed to assess the relationship between variables. Statistical significance of the correlation was computed. Statistical Package for the Social Sciences (SPSS) was used to compute the data and assess the statistical significance of the data.

### Summary

This chapter has summarized the research design and the methods used for the data collection among sample of respondents. The development of the questionnaire was discussed and the data collection and analysis were reviewed. SPSS was used to analyze the data. The data analysis is presented in Chapter IV.

## CHAPTER IV: DATA ANALYSIS

The results of this study are organized around the research questions that guided the research study. The study sample is described first, followed by the demographic data and research questions.

### Description of the Study Sample

The study sample originally consisted of 500 randomly selected active duty Air Force women stationed throughout the continental United States. Of the 500 questionnaires that were mailed, 50 were returned because the addressee was no longer at the mailing address and no forwarding address was available. Of the remaining 450 sample members, 224 returned the completed questionnaire for a response rate of 50%.

### Demographic Data

Table 1 represents the demographic characteristics of the research sample. Ages ranged from 18 to 50 years and greater. A majority of respondents (37.1%) ranged from ages 25-34, closely followed by ages 18-24 (34.4%). Sixty-seven percent were Caucasian and 16.1% were African American. Two people did not answer this question. Twenty-three percent were enlisted personnel, E-1 through E-3, and 45% were E-4 through E-6. Twenty-four percent of the respondents were officers, including 15.6% company grade officers and 8.9% field grade officers. Fifty-five percent of the respondents were married, 30.8% were single, 13.4% were divorced, and .4% were widowed. The highest level of education of the respondents included some college experience in 41.1%, and high school diploma or high school equivalency in 16.1%. Doctoral (4%), Master's (10.7%), Bachelor's (17%), and Associate (11.2%) degree preparation were all represented.

Table 1

Demographics of 224 Respondents

<u>Characteristic</u>	<u>No</u>	<u>%</u>	<u>Characteristic</u>	<u>No</u>	<u>%</u>
<u>Age</u>			<u>Marital Status</u>		
18-24	77	34.4	Single	69	30.8
25-34	83	37.1	Married	124	55.4
35-49	59	26.3	Divorced	30	13.4
≥ 50	5	2.2	Widowed	1	0.4
<u>Race or Ethnic Group</u>			<u>Highest Level of Education</u>		
Caucasian	150	67	High School or GED	36	16.1
African American	36	16.1	Some College	92	41.1
Hispanic	18	8.0	Associate's Degree	25	11.2
Asian	13	5.8	Bachelor's Degree	38	17
Other	5	2.2	Master's Degree	24	10.7
No answer	2	0.9	Doctoral Degree	9	4.0
<u>Rank/Grade</u>					
E1-E3	53	23.7			
E4-E6	102	45.5			
E7-E9	14	6.3			
O1-O3	35	15.6			
O4-O6	19	8.5			
≥ O7	1	0.4			

Note. n = 224. E=Enlisted personnel; O=Officer personnel.



### Research Question #1

What herbs are active duty Air Force women using and was a provider seen for the same problem the herbs were used?

Of the 224 respondents, 37 (16.5%) were using herbal therapy. Table 2 presents the herbs used by the respondents and the number of respondents that saw a provider for the problem for which the herb was used. Several respondents were using more than one herbal therapy for a total of 78 herbal therapies. The most commonly used herbal therapies were Ephedra (n=12), Echinacea (n=12), Ginkgo (n=12), Ginseng (n=11), St. John's Wort (n=10), Combination Chinese herbs (n=10), and Garlic (n=8). Of the 78 herbal therapies, 16 (21%) were respondents seen for the same problem by their medical provider.

### Research Question #2

How frequently are the herbs being used?

The frequency herbs were used is presented in Table 3. The questionnaire delineated herbal use as daily, weekly, monthly, and infrequently. Forty-six of the 78 herbs (59%) were used on a daily basis. Table 4 presents the individual herbal therapies and whether the respondent used them according to the manufacturer's recommendations.

### Research Question #3

The reasons herbs were used are presented in Figure 1. Weight loss (n=15) was the most common reason herbs were used, followed by general health (n=9), energy (n=9), and memory (n=9). Respondents of fourteen of the 78 herbal therapies had no response to this question. Additional responses included cold or flu symptoms (n=7), sleep (n=4), stress (n=3), and depression (n=3).

Table 2Herbs Used by Respondents; Users seen by Provider for Same Symptoms

Type Of Herb	<u>No. Used in Past</u>	<u>No. Saw a Provider</u>
Ephedra	12	4
Ginkgo	12	0
Echinacea	12	1
Ginseng	11	1
St John's Wort	10	1
Combination Chinese Herb	10	5
Garlic	8	1
Soy	1	1
Kava	1	1
Valerian	1	1
<b>Total</b>	<b>78</b>	<b>16</b>

Note. # denotes Number of Respondents. n = 78.

Table 3Frequency of Herbal Therapy Use

<u>Herb</u>	<u>Daily Use</u>	<u>Weekly Use</u>	<u>MonthlyUse</u>	<u>Infrequent</u>
Echinacea	4	1	0	7
Combined Chinese Herbal	8	1	1	0
Ephedra	11	1	0	0
Garlic	5	2	0	1
Ginkgo	7	4	0	1
Ginseng	5	2	1	3
Kava	1	0	0	0
Soy	0	0	0	1
St. John's wort	4	3	0	3
Valerian	1	0	0	0
<b>Total</b>	46	14	2	16

Note. n = 78.

Table 4

Herbs Used Per Recommended Frequency

<u>Herb</u>	<u>Yes</u>	<u>No</u>	<u>Unknown</u>	<u>Total</u>
Echinacea	7	1	4	12
Combined Chinese Herbal	8	1	1	10
Ephedra	10	1	1	12
Garlic	4	2	2	8
Ginkgo	6	5	1	12
Ginseng	4	3	4	11
Kava	1	0	0	1
Soy	0	1	0	1
St. John's Wort	5	4	1	10
Valerian	1	0	0	1
<b>Total</b>	46	18	14	78

Note. n = 78.

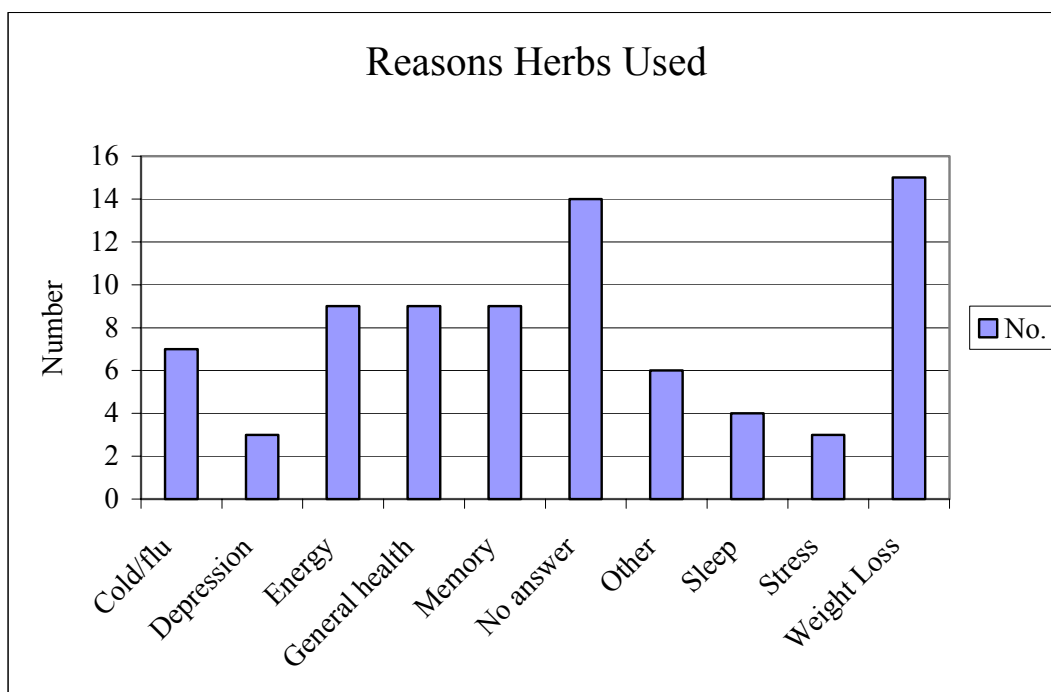


Figure 1. Reasons herbs used.

#### Research Question #4

Is there any relationship between demographic characteristics of active duty Air Force women and their use of herbs?

There were no statistically significant relationships between the demographic characteristics and the use of herbal therapies (see Table 5).

#### Research Question #5

Do active duty Air Force women find the herbs used beneficial?

An overwhelming 68 (87%) of the 78 herbal therapies were found to be beneficial to the users. There was no answer to this question for three of the 78 therapies. All of the users of Ephedra, soy, Kava, and Valerian found them to be beneficial; however, soy,

Kava, and Valerian were only used by one user each. All eleven users of Ephedra found the herb to be beneficial.

#### Research Question #6

Did the participant tell her medical provider of her herbal use?

Thirty-three percent of the herbal therapies used were reported to the patient's providers. Table 6 presents each herb and the percentage reported to providers. Forty-percent of the Combination Chinese herbal therapies were reported to the provider, followed by Garlic (38%), Ginseng (36%), Ephedra (33%), Ginkgo (25%), Echinacea (25%), and St. John's Wort (20%). The individual user of Kava and Valerian told her provider of the herb use and the one Soy user did not.

#### Research Question #7

Who recommended the use of the herbal therapy?

Of the 37 users of herbal therapies, 12 (24%) of the therapies were recommended by friends, 16% by health journals, 14% by co-workers, and 8% by providers, the internet, and by no one. Additional responses included parents (6%), spouses (6%), television (6%), health food store (2%), and pharmacist (2%). The respondents were able to provide more than one answer to this question.

#### Research Question #8

Were there any adverse effects reported with use of herbs?

Only seven of the 78 (9%) herbal therapies were reported to have adverse effects. Four (33%) of the twelve users of Ephedra reported rapid heart rates and jitteriness. One user of the Combination Chinese herb reported headaches. A Ginseng user reported

jitteriness and anxiety while a respondent using both Ginseng and Ginkgo reported an increase in her blood pressure.

#### Research Question #9

What other prescriptive medications are being taken concurrently?

Figure 2 presents the other prescription medications being concurrently taken along with the herbal therapies. Sixteen (43%) of the 37 respondents using herbal therapies were also taking oral contraceptives. Fifteen (41%) were not taking any prescription medications. Other prescription medications included allergy medications (n=4), thyroid medication (n=3), non-steroidal anti-inflammatories (n=2), blood pressure medication (n=2), hormone replacement (n=1), and sleeping medication (n=1).

Table 5

#### Demographics and Use of Herbs: Pearson Chi Square and Coefficient of Correlation

Demographics	Pearson Chi Square <sup>1</sup> (p value)	Pearson Coefficient of Correlation <sup>2</sup> (r value)
<u>Age</u>	.18	-.062
<u>Rank</u>	.98	.011
<u>Race</u>	.171	-.008
<u>Marital Status</u>	.383	-.093
<u>Education</u>	.785	.005

Note. <sup>1</sup> p<.05: statistical significance; <sup>2</sup> r = 0: no relationship between variables; r = 1: positive correlation; r = -1: negative correlation.

Table 6

Told Providers of Herbal Use

<u>Herb</u>	<u>Yes</u>	<u>No</u>	<u>No answer</u>	<u>Total</u>
Combination Chinese Herbal	4	6	0	10
Garlic	3	4	1	8
Ginseng	4	7	0	11
Ephedra	4	8	0	12
Ginkgo	3	9	0	12
Echinacea	3	9	0	12
St. John's wort	2	8	0	10
Soy	0	1	0	1
Kava	1	0	0	1
Valerian	1	0	0	1
<b>Total</b>	25	52	1	78
<b>Percent</b>	33%	66%	1.3%	

## Research Question #10

What is the participant's personal perception of her overall health?

This question was presented to the respondents on a Likert scale from 1, as the least healthy, through 7, the healthiest. Figure 3 represents the respondents' perception of their health. Eleven of the 37 respondents answered "6," ten of the respondents answered "7," ten answered "5." The six remaining respondents answered "2" (n=2), "3" (n=1), and "4" (n=3).



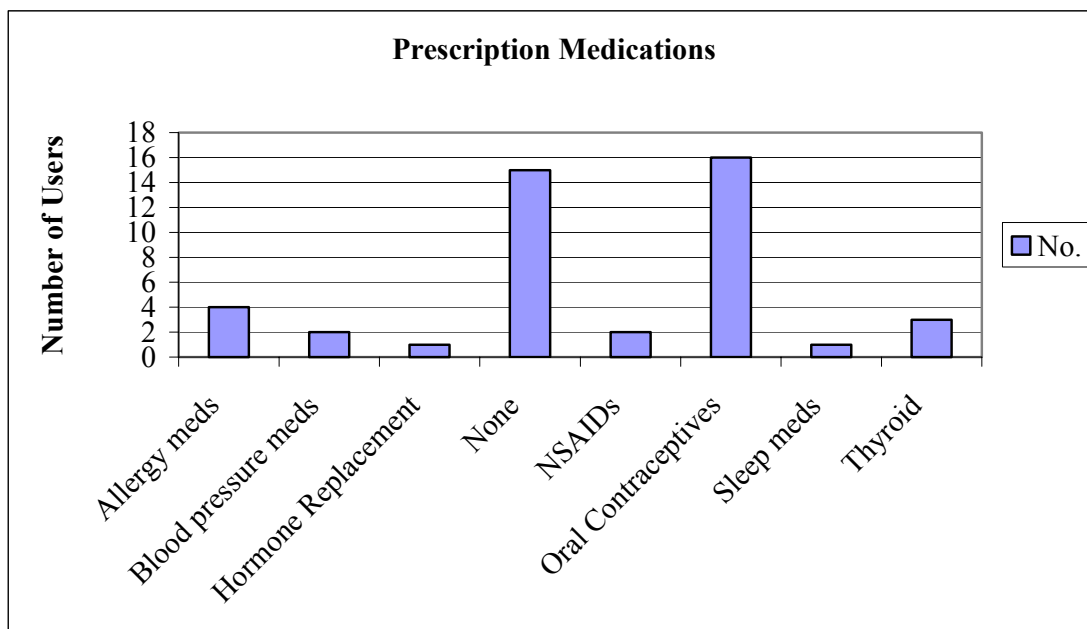


Figure 2. Prescription medications.

Note. NSAIDs= Non-steroidal anti-inflammatory medications.

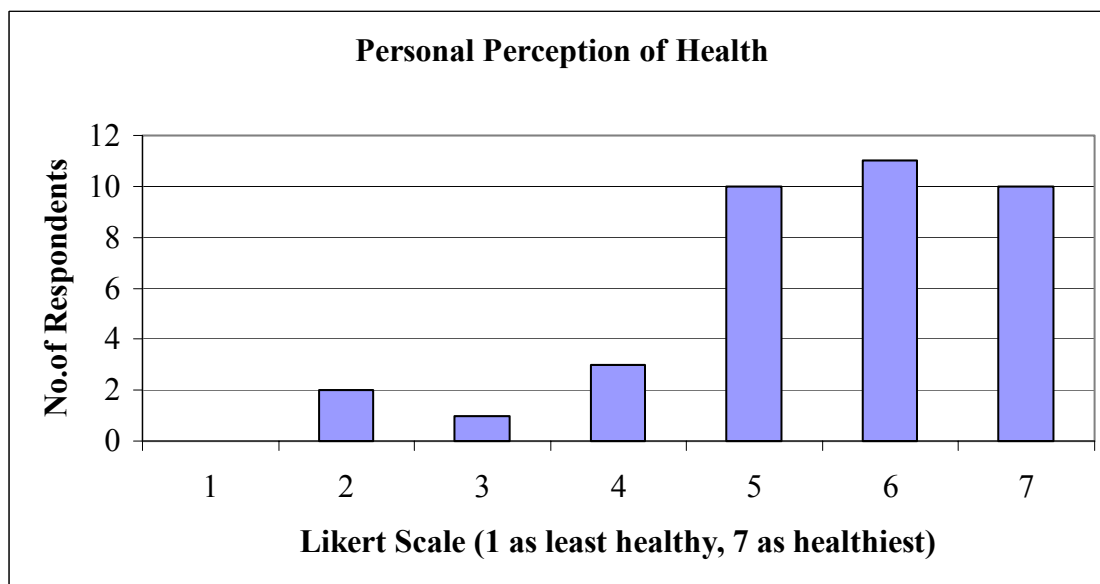


Figure 3. Personal perception of health of herbal users.

## CHAPTER V: SUMMARY

This chapter focuses on the discussion, conclusions, and implications of the results. It begins with a summary of the study, followed by a discussion and possible explanations of the findings. Implications for clinical practice and further research are included.

### Summary of the Study

Ever since the passage of the Dietary Supplement Health and Education Act (DSHEA) in 1994, the U.S. herbal market has boomed. Some 60 million Americans are now taking herbal medications regularly (Greenwald, 1998). Eisenburg and colleagues (1998) published results of a study reporting use of herbal therapies by 12.1% of Americans in 1997, an increase from 3% in 1990. There have been few published studies on the use of herbal therapies in women or the military population. This study examined the use of herbal therapies by active duty Air Force women throughout the continental United States. The conceptual framework for this study drew on Orem's Self-care Theory (Orem, 1980). Orem described several factors that influence activities that promote health and well being. These include the relationship between the deliberate self-care actions of an individual and his/her functioning and development. The decision to take herbs can be integrated into this self-care model.

A descriptive survey design was used to examine the use of herbal therapies by the study participants. The questionnaire was developed after a thorough review of the literature. Content validity was confirmed using three experts in the area of herbal therapy. Face validity of the questions was determined by pre-testing the survey with ten Air Force family nurse practitioner students. The questionnaire, with an introductory

instruction letter and self-addressed stamped return envelope, was mailed to a random sample of 500 active duty Air Force women throughout the continental United States. Anonymity of the respondents was ensured by omission of identification data. The response rate was 50%.

Responses to the research questions were analyzed by means of descriptive statistics such as percentages and frequencies. Correlation coefficients were performed, when appropriate. Tables and graphs were designed to display the study results.

The major study findings were: Active duty Air Force women used herbal therapies at a higher rate than Eisenburg and colleagues found in 1993 and 1997 among the general population. Herbal therapies were being used by 16.5% of the Air Force respondents. The most frequent herbs used were Ephedra, Echinacea, Ginkgo, and St. John's wort. The most common reasons herbs were used included weight loss, general health, energy, and memory.

Twenty-one percent of respondents also saw a medical provider for the same problems for which the herbs were used. Thirty-three percent of the herbal therapies used were reported to the respondents' medical providers. There were no significant demographic characteristics which correlated with the use of herbal therapies. Most users found the treatments beneficial, with seven of the 78 herb users reporting adverse effects. Four of the six users reporting adverse events experienced rapid heart rates with the use of Ephedra. Herbal therapies were recommended by various means, including friends, health journals, co-workers, health providers, internet, and family members. A majority of the herbal users were also taking prescription medications including oral contraceptives, allergy medications, thyroid medication, non-steroidal anti-inflammatory

drugs, anti-hypertensives and over-the-counter vitamin supplements. A majority of herbal users rated themselves on the high-end of the Likert scale for health.

### Implications of the Findings

The results of this study indicate that women in the military are using herbal therapies at a higher rate than the civilian population. Their decision to use herbs demonstrates a general belief of and willingness to use treatments other than those offered by conventional medicine.

Many respondents reported using herbs for self-treatment and illness prevention. As the military continues with “Putting Prevention into Practice” and stressing wellness issues, medical providers need to be informed of the alternative treatments their military patients are using.

Only thirty-three percent of women in this study told their medical providers of herbal use. All medical providers, including physicians, nurse practitioners and physician assistants need to ask the appropriate questions and be able to give guidance and education on herbal therapies. Health care providers must remain informed about current trends in herbal therapy and need to remain abreast of any research identifying benefits and safety issues of these products.

### Interpretation of the Findings

The findings of this study were based on a relatively small sample of active duty Air Force women stationed in the continental United States. Men, retirees, and family members may also be using herbal therapies. The fact that there was no correlation between demographic characteristics and the use of herbs in this study stresses the need

to ask every patient about herbal therapy use. With the relative ease in obtaining herbal products, the prevalence of use will likely not decrease in the near future.

#### Implications for Further Research

This study documents the extent of herbal therapy used by women on active duty in the Air Force. It also documents that the use of herbal therapies is higher within the military culture studied than in the civilian community.

Further research needs to be done to describe the reasons persons seek herbal therapies instead of conventional therapies. Studies should explore the education of providers regarding herbal therapies.

This study warrants replication with all military beneficiaries including other branches of the services, men, retired personnel, women, and children. Further areas to explore include obtaining data on the personal perception of health of all the respondents, both herb-users and non-users. This could be done with minor modifications to the questionnaire. Differences in perception of one's health between users and non-users could then be explored.

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## LIST OF APPENDICES

Appendix A: Questionnaire

Appendix B: IRB Approval Letter

Appendix C: Introductory Letter

APPENDIX A

QUESTIONNAIRE

# Herbal Therapy Survey

**\*\* For the following questions, please darken the circles next to the correct response.**

1. What is your age?

- ☐ 18 – 24                      ☐ 35 – 49  
☐ 25 – 34                      ☐ ≥ 50

2. What is your race or ethnic group?

- ☐ Asian                              ☐ African American  
☐ Hispanic                          ☐ Caucasian  
☐ Other

3. What is your rank?

- ☐ E1 – E3                          ☐ O1 – O3  
☐ E4 – E6                          ☐ O4 – O6  
☐ E7 – E9                          ☐ ≥ O7

4. What is your marital status?

- ☐ Single                              ☐ Divorced  
☐ Married                            ☐ Widowed

5. What is the highest level of education completed?

- ☐ Did not finish High School                      ☐ Associate's Degree  
☐ High School Diploma or GED                      ☐ Bachelor's Degree  
☐ Some College                                      ☐ Doctoral Degree

6. Are you currently using herbal therapy on a regular basis?

- ☐ Yes      ☐ No

**\*\*\*If YES, please CONTINUE to next page.**

**\*\*\*If NO, please stop here. Thank you for completing the survey.**

7. If you are currently using any of the listed herbs, please answer the questions in the shaded area.

Herbs	Currently using this herb?	Frequency of use	Is this the recommended frequency of use?	Did you tell your health care provider of your use?	What was the condition for which you used herbal therapy?	Did you also see a health care provider for this condition?
St. John's Wort	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Echinacea	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Ginkgo Biloba	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Ginseng	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Valerian	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Kava Root	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Feverfew	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Soy	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No

7. (Continued) If you are currently using any of the listed herbs, please answer the questions in the shaded area.

Herbs	Currently using this herb?	Frequency of use	Is this the recommended frequency of use?	Did you tell your health care provider of your use?	What was the condition for which you used herbal therapy?	Did you also see a health care provider for this condition?
Hawthorn	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Garlic	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Ephedra (Ma Huang)	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Black Cohosh	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Combination Herbal Preparation	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
Others: Please list any other herbal therapies used:						
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Daily <input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Infrequently	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	<input type="radio"/> Yes <input type="radio"/> No		<input type="radio"/> Yes <input type="radio"/> No

8. Who or what recommended the use of herbal therapy? Please darken circles to all that apply.

- |                              |  |                                      |
|------------------------------|--|--------------------------------------|
| <input type="radio"/> Spouse | <input type="radio"/> Health Care Provider | <input type="radio"/> Health Journal |
| <input type="radio"/> Parent | <input type="radio"/> Co-Worker            | <input type="radio"/> TV             |
| <input type="radio"/> Child  | <input type="radio"/> Friend               | <input type="radio"/> Other _____    |
| <input type="radio"/> No One | <input type="radio"/> Internet             |                                      |

9. Where did you obtain the herbal medication?

- |                                  |   |
|----------------------------------|---|
| <input type="radio"/> Pharmacy   | <input type="radio"/> Health Food Store |
| <input type="radio"/> Drug Store | <input type="radio"/> Mail Order        |
| <input type="radio"/> BX         | <input type="radio"/> Other _____       |

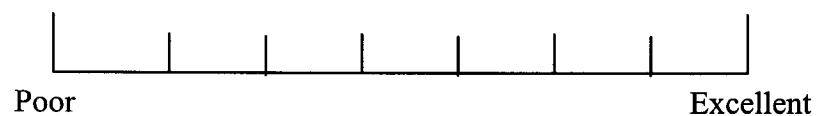
10. Did the herbal medicine help you? Please explain.

11. Did you experience any adverse effects with the use of herbs? Please explain.

12. Are you taking any prescription medications while on herbal therapy? Please list.

13. Do you take any other supplements or over-the-counter medications (ie. vitamins, minerals)? Please list.

14. Please indicate on the scale below, your opinion of your overall health at this time?



Poor

Excellent

15. Are there any other comments you would like to add concerning your use of herbs?

**THANK YOU FOR COMPLETING THE SURVEY.**



## APPENDIX B

### IRB APPROVAL LETTER



UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES  
F. EDWARD HEBERT SCHOOL OF MEDICINE  
4301 JONES BRIDGE ROAD  
BETHESDA, MARYLAND 20814-4799



April 25, 2000

MEMORANDUM FOR CAPT KIMBERLY M. SHANKS, USAF, NC, GRADUATE SCHOOL  
OF NURSING

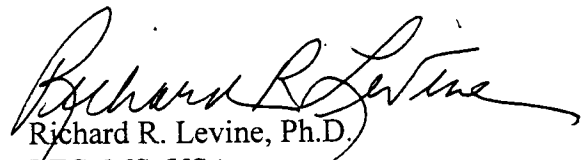
SUBJECT: IRB Approval of Protocol **T061BG-01** for Human Subject Use

Your research protocol entitled "*The Prevalence of Herbal Therapy Use in Active Duty Air Force Women*," was reviewed and approved for execution on 4/25/2000 as an **exempt** human subject use study under the provisions of 32 CFR 219.101 (b)(2). This approval will be reported to the full IRB scheduled to meet on 11 May 2000.

The purpose of this study is to determine the prevalence of herbal use among active duty Air Force women. The IRB understands that this study involves the administration of an anonymous questionnaire to a random sample of 500 active duty AF women throughout the U.S. The questionnaire examines the perceived benefits and adverse effects of herbal use and whether the women informed their healthcare providers of their herbal use. The IRB further understands that no subject identifying information will be collected or recorded as part of this study.

*To complete your study file, please provide this office with a copy of the introductory letter to be used in the administration of the questionnaire as well as a copy of your study approval letter from the Survey Branch at AFMPC/DPSAS.*

Please notify this office of any amendments you wish to propose and of any untoward incidents which may occur in the conduct of this project. If you have any questions regarding human volunteers, please call me at 301-295-3303.

  
Richard R. Levine, Ph.D.  
LTC, MS, USA  
Director, Research Programs and  
Executive Secretary, IRB

Cc: Director, Research Administration



## APPENDIX C

### INTRODUCTORY LETTER



UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

4301 JONES BRIDGE ROAD  
BETHESDA, MARYLAND 20814-4799



Dear Colleague,

You have been selected as part of a random sample to participate in an important study concerning the use of herbal therapy by Air Force women. The results of this study will provide useful information about the health practices of Air Force women and may suggest areas where health care practitioners may better meet the needs of this population. I am undertaking this study as a graduate student in the Family Nurse Practitioner program at the Uniformed Services University of Health Sciences (USUHS).

In 1998, Dr. David Eisenburg and his colleagues published a national study on the prevalence, costs, and disclosure of alternative therapies, including herbal therapy. Alternative therapies are considered to be any treatment outside the mainstream of conventional medicine. The results showed an increase in the use of herbal therapy. Few studies have documented the use of herbal therapy by military women.

The survey takes approximately 15 minutes to complete. Your anonymity is assured and individual responses will remain confidential. After study results are compiled, the University faculty will review the report. Please fill in the information promptly after receipt and return the survey in the self-addressed, stamped envelope provided.

Please follow directions for each question carefully. Add any comments you feel relative to the study. Please do not place your name on the questionnaire. If you have any additional input, or would like a copy of the study results, please address inquiries to me at the following address:

Capt Kimberly M. Shanks  
5006 N. 25<sup>th</sup> Street  
Arlington, VA 22207

Thank you so much for your participation in this research project. Please return the completed questionnaire within two weeks.

*Kimberly Shanks*  
KIMBERLY M. SHANKS, Capt, USAF, NC  
Family Nurse Practitioner Student

